

ABSTRACT OF THE DISCLOSURE

Disclosed herein is a wavelength-division-multiplexed metro optical network. The network comprises a transmitting unit having direct modulating transmitters and a multiplexer for multiplexing the optical signals and transmitting the multiplexed signal, and a receiving unit having a demultiplexer for receiving the multiplexed signal from the multiplexer, demultiplexing the received signal and outputting the demultiplexed signals, and receivers for receiving the demultiplexed signals. The network further comprises an optical fiber connected between the multiplexer and the demultiplexer. The optical fiber has a negative dispersion value of from -1 ps/nm/km to -3.3 ps/nm/km at a wavelength of 1550 nm, and a positive dispersion inclination. The network adopts a direct modulation system and uses the optical fiber, which has an appropriately adjusted negative dispersion value, thereby decreasing distortion of an optical signal, preventing an error, performing a long-distance transmission of the signal over 300 km without performance deterioration due to four-wave mixing.